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Redefining 'Property' in the Digital Era.
When online, do as the Romans did.

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**REDEFINING ‘PROPERTY’ IN THE DIGITAL ERA
WHEN ONLINE, DO AS THE ROMANS DID**

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Abstract

Through its conceptual framework, private law assumes a particular structure of the reality it aims to govern. With the digital revolution the structure of this reality has transformed. Law does not have terms and concepts to make sense out of it. This leads scholars and judges dealing with the new reality to confusion and inoperable conclusions. Law needs new concepts, but lawyers have neither a method nor the tools to create them.

Firstly, the author proposes a method of internalizing new types of objects of ‘property’ into private law discourses. This method consists of three steps: terminological clear-up; ‘mode of existence’ lenses; and ‘conditions-for-enforcement-backwards’ analysis. The author presents and tests the method on two examples: personal data and ‘virtual property’.

Secondly, the author suggests a new categorization of objects of private law relations, including the new types of assets currently controlled and traded by legal subjects, abandoning material/immaterial distinction, and replacing it with a triad of *res corporales*, *digitales* and *incorporales*. Further, the importance of the distinction between objects ‘as such’ and their carriers is underlined. Finally, the author distinguishes between objects with primary and secondary mode of existence – the latter needing third party’s action to be sustained, a positive obligation in the negative dimension of a potential property right – a complete novum for the private law ordering.

Keywords

Property, personal data, virtual, legal methodology, concept

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And no one puts new wine into old wineskins.
For the new wine would burst the wineskins, spilling the wine and ruining the skins.

Luke 5:37

Introduction

The concept of property is as old as Western law¹, and forms one of the basic institutions of private law². However, it was created and developed when the objects of property were either tangible things or immaterial goods (rights and intellectual property), and in this form it has permeated legal thought, the science of economy and the popular imagination. I claim that this reality, easily divisible into corporeal and incorporeal, has dramatically transformed.

With the digital era new types of objects of private law relations have emerged or become relevant. Information, personal data, dematerialized instances of objects, virtual items, in-app purchases and crypto-currencies like bitcoin escape the abovementioned dichotomy, due to at least three factors: emergence of digital objects (for example, computer files, being neither material nor immaterial in the traditional sense); of objects with ‘secondary mode of existence’ (for example, files stored in the cloud, needing a third party’s constant action to be sustained) and of service dependent objects (for example, virtual items or in-app purchases, existing and functioning only within a particular on-line service). These objects, currently being traded, ‘stolen’, and treated as ‘property’ due to their characteristics, usefulness and high monetary value are not property *de lege*, but could be classified as such *de facto*. Normative debates over their current and desirable legal status are now taking place.

However, private law discourses have not yet internalized the existence of these types of objects in a holistic and conceptually clear and coherent manner. Lawyers still operate on a basic material/immaterial distinction, and try to ‘stretch’ the existing concepts³ when confronted with the types of entities they do not understand. For this reason, the current debates, especially normative ones, tend to be obscure on the logically prior, descriptive level.

In consequence, questions like: ‘Is bitcoin money?’; ‘Is an e-book a book?’; ‘Can one ‘own’ one’s personal data or an item in a computer game?’; and their prescriptive ‘should X be Y?’ counterparts, defeat otherwise competent scholars⁴. Given the theoretical and practical significance of these questions, they should already be easy to answer; and yet they are not, due to the lack of understanding of the new entities’ nature and an outdated theoretical framework underpinning the arguments. My aim in this piece

¹ Property has been a crucial concept and a basic institution in Roman law, see: Gaius, *Institutiones* (160AD); and: George Mousourakis, *Roman Law and the Origins of the Civil Law Tradition* (Springer 2015); thoroughly debated since the beginnings of the Greek philosophy, see: Plato, *The Republic* (360 BCE); and: Aristotle, *Politics* (350 BCE); property also formed part of the basis of the Covenant between God and Abraham, and in this sense highly influenced both Judaism and Christianity (see Genesis 17:8). In other words, the concept of ‘property’ has been inherent since the beginnings of the ‘three hills on which the Western civilisation stands’: the Capitol, the Akropolis and the Golgotha, to use the metaphor of Theodor Heuss, the first President of the Federal Republic of Germany; see: Theodor Heuss, *Reden an die Jugend*. (R Wunderlich 1956).

² I use the term ‘private law’ to refer to the body of norms regulating relations between legally equal persons, specifically contract law, property law, tort law and inheritance law; in other words, the body of norms that in continental tradition is regulated by the Civil Codes and adjudicated in accordance with Civil Procedure, as opposed to criminal law or administrative law. I am aware of the debates concerning private/public law divide, but this is not the place to take a stand on them.

³ The phenomenon of ‘conceptual stretching’ first described and criticized in: Giovanni Sartori, ‘Concept Misformation in Comparative Politics’ (1970) 64 *The American Political Science Review* 1033.

⁴ This claim is elaborated and exemplified in the section 1.4 of the Article

is not, in fact, to answer such questions (make a prescriptive claim on how the law should be changed), but to explain why they appear to be so difficult (in Part One), and to propose a method that will make answering them easier (Part Two).

The residual category of ‘immaterial goods’ currently hosts entities extremely different from each other like rights and computer files, artistic works and digital currencies. ‘Property’ in these unlike types of objects would mean significantly dissimilar social orderings, with different types of rights, remedies and enforcement procedures needed. The toolkit I propose takes into account the legally relevant features of the objects’ ontological structure, the way they come to exist, continue to exist and cease to exist; and answers the questions of what can be done with and to the entities under examination.

The contribution of the piece is twofold: methodological and doctrinal. On one hand, I propose a method, a toolkit, for answering questions like those above (Part Two). On the other, I propose an initial re-categorization of objects of private law relations, a new typology to be incorporated into the private law discourses, primarily judicial and doctrinal⁵ (Parts Three and Four) which abandons ‘(im)materiality’ as a criterion and replaces it with a much more nuanced and operable ‘mode of existence’.

A few words on ‘words’ and ‘property’

One paradox seems unavoidable. I claim that private law does not yet have the words (terms and concepts) to speak about the phenomena under analysis; and yet I need words to describe and explain them to a lawyerly audience. For that reason, whenever I use a word as a placeholder for a word that does not yet exist and signal that I ascribe to it a non-strictly-legal and rather intuitive meaning, I put it in inverted commas, when e.g. speaking of ‘selling’ personal data or ‘possession’ of a virtual item. One term, however, needs immediate attention, and that term is ‘property’.

The English word ‘property’ has two different legal meanings. On the one hand, it refers to the *objects* of property rights, the entities one can possess, sell and use. In this sense a house, a car, a bill of lading or an artistic work are one’s ‘property’⁶. On the other hand, ‘property’ means a type of a *right* (or a bundle of rights), effective *erga omnes*, with the positive dimension (a right to use and alienate) and the negative dimension (a right to exclude others from enjoying the object). In this article the term ‘object of property’ is used when referring to the former; the term ‘property right,’ to the latter.

The substance of a right depends not only on the political decision on its limitations, but primarily on the characteristics of the object. A property right in a tangible thing (e.g. ownership or usufruct) differs in substance, remedies and is differently enforced from a property right in an artistic work (copyright), spectrum or goodwill. This is because using or selling a tangible thing means different actions in practice than doing so with an artistic work or a debt.

In the light of these remarks, one should note that ‘the *concept* of property’ can mean both a concept of an object of a property right (a concept of a ‘thing’/‘choses in possession’, an ‘artistic work’, a ‘trademark’ or a ‘goodwill’), a concept of the type of social ordering (‘property’ in general: a right to use and exclude others), and a concept of a type of a property right (a concept of ‘ownership’, ‘usufruct’, ‘servitude’ or ‘copyright’). In this article I claim that due to the emergence of new types of digital entities, law needs both new types of concepts of objects, and new types of concepts of rights on these objects, and that consequently the general idea of ‘property’ as a type of social ordering will be redefined.

⁵ When speaking of ‘law’ as ‘legal discourses’, I distinguish four: legislative, judicial, doctrinal and theoretical, as in: Giovanni Sartor and Meritxell Fernandez-Barrera, ‘The Legal Theory Perspective: Doctrinal Conceptual Systems vs. Computational Ontologies’ in Giovanni Sartor and others (eds), *Approaches to Legal Ontologies. Theories, Domains, Methodologies* (Springer 2011).

⁶ In this sense when Michael Bridge discusses ‘types of property’, when speaking of chattels, choses in possession, choses in action etc. See: MG Bridge, *Personal Property Law* (Second edition, Blackstone 1996).

One needs to remember that 'property' has not only a legal meaning, but also an economic, a social and a psychological one. The first two encompass the objective situation of controlling something as if it was one's property (object), and the latter the subjective perception of 'having' something.

If Google holds ('possesses'?) an enormous amount of its users' personal data, controls it, uses it, maybe 'buys' some, maybe 'sells' some, but definitely profits from it, there is a (still obscure) sense in which this data is Google's 'property'. This is so even if law does not recognize personal data as 'property'. And if a user of a mobile application concludes an in-app purchase to obtain an in-game item, clicks 'buy', transfers the money and receives the item, again there is an obscure sense in which what he or she 'has got' is their 'property'.

The problem this article addresses is that the participants in the normative debates (and court cases) on whether these objects should be considered 'property' by the private law, and so whether property rights should be granted on them, keep using the old concepts of objects of property and/or of property rights. These concepts do not match the characteristics of the new types of entities and the practice of the social relations that concern them.

This piece provides lawyers, both scholars and practitioners, with tools that will enable them to create new, operable legal concepts of objects of property rights⁷.

Part one: Law & reality, the role of legal concepts

'Why would law need new concepts? With the dematerialization of money, company shares or bills of lading no new concepts were created, and law does just fine. Is there not a intrinsic value in matching the new reality with the law, instead of the law with the reality?' This is a common objection, and the purpose of this part is to address it. I claim that in a particular type of situation, private law faces the danger of arriving at inoperable conclusions, if its outdated concepts are applied to the new phenomena.

Firstly, I study the dual role that concepts play in the law's attempt to regulate the reality⁸, in particular within the model of a private law relationship. This is the theoretical part. Secondly, I reconstruct the current conceptual frameworks of objects of property used in private law discourses and trace their historical origins in a comparative context. Thirdly, having demonstrated what concepts 'do' and what concepts 'are available', I show how private law discourses might 'get it wrong', and so why the conceptual framework must be updated.

Dual role of legal concepts: reality graspers and inferential nodes

Law has two ambitions: to regulate reality and to do so in a general and abstract manner.

How can law possibly regulate reality⁹? Since legal norms emerge from textual provisions, these provisions must contain terms that refer to (denote) subjects and objects under regulation. While stating what the reality *should* be (e.g. 'people should not drive the cars faster than X'), law *volens nolens*

⁷ To be clear: I am **not** making a prescriptive claim that the lawmaker *should* grant any property rights on personal data, virtual items or any new type of *res digitales*. My only claim is that, to take such a political decision, one needs to understand the reality and its potential to change, and that to describe the reality for legal purposes one needs proper words. I am seeking those words.

⁸ I understand 'reality' as the sum of all the phenomena referred to in the dispositions of legal norms, encompassing relations between persons and individual behaviour, embedded in the physical, social, political, economic and cultural setting.

⁹ To clarify, I am not asking here how social practices bring about social and institutional facts (a theory explaining this has been proposed by J. Searle in *The Construction of Social Reality*); nor am I asking how it is possible that a legal language can be performative (this seems to me well explained by the philosophy of language). My question is: what is it about the text itself, about its semantic structure, that allows it to govern the reality?

expresses the assumptions about what the reality *is* and could *be* (people drive cars, people sometimes do so too fast, people can choose the speed of the car, etc.). Law refers to reality through legal concepts.

Such concepts obtain their meaning neither from the natural language, nor just from legal definitions alone, but from the totality of legal norms directly or indirectly containing legal terms that express them. As Giovanni Sartor puts it: ‘a legal system endows its concepts with meaning exactly by embedding such concepts (the terms expressing them) within legal norms’¹⁰.

The meaning of a term is constituted by a concept being an abstract entity, an inferential node in legal reasoning, serving as a link between different norms. In consequence, legal concepts are ‘heavy’. For a trained lawyer a statement that an entity is ‘a thing’, ‘a work’ or a ‘legal person’ carries an enormous amount of legal information. Moreover, one can perfectly understand the meaning of a term relying solely on the text, without any reference to social reality and practice.

However, as noted above, legal terms also refer to actual objects and subjects of legal relations. When the lawgiver states, for example in article 903 of the BGB: ‘The owner of a thing may [...] deal with the thing at his or her discretion and exclude others from every influence’¹¹, this is an objective fact¹² that Franz can eat the sandwich he bought. The term ‘an owner’ refers to him, and the term ‘thing’ refers to the sandwich, just like they refer to all the persons and things in the Federal Republic of Germany.

Two important conclusions follow from the considerations above.

Firstly, there is a dialectical relation between legal terms, legal concepts containing those terms and the actual objects; since the terms obtain their meaning from the concepts constituted by the norms, and so they can refer to the actual objects, while the norms are created based on the features of the actual objects, not the concepts. I illustrate this in Figure 1, below.

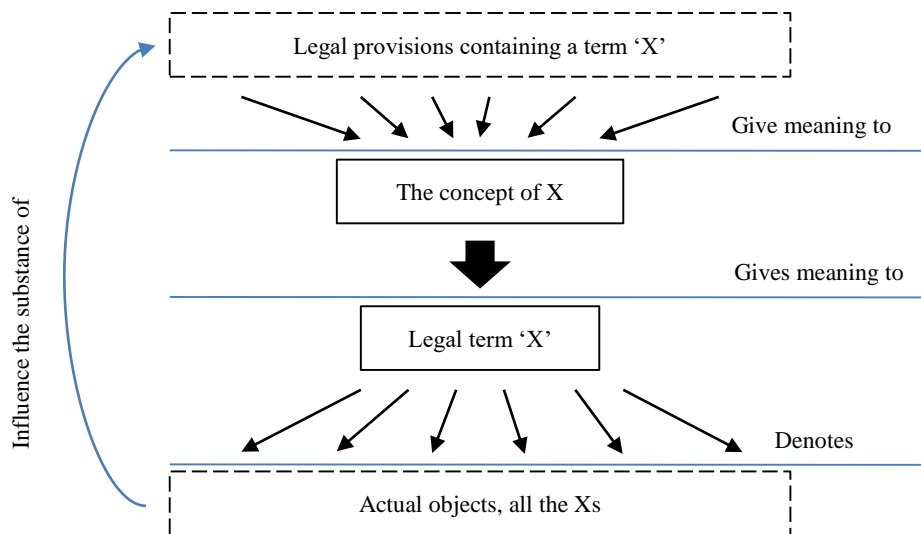


Figure 1. Dialectical relation between a legal term, a concept and extra-legal designates

¹⁰ Giovanni Sartor, ‘Understanding and Applying Legal Concepts: An Inquiry on Inferential Meaning’ in JC Hage and C Jaap (eds), *Concepts in Law* (Springer 2009).

¹¹ When citing BGB, I refer to the text at: http://www.gesetze-im-internet.de/englisch_bgb/englisch_bgb.html#p3699

¹² Once again, to use Searle’s distinction: objective in epistemic sense, as in: John Searle, *The Construction of Social Reality* (Allen Lane The Penguin Press 1995).

Secondly, legal terms refer both to the concepts, being abstract entities, and to the actual objects (Figure 2, below).

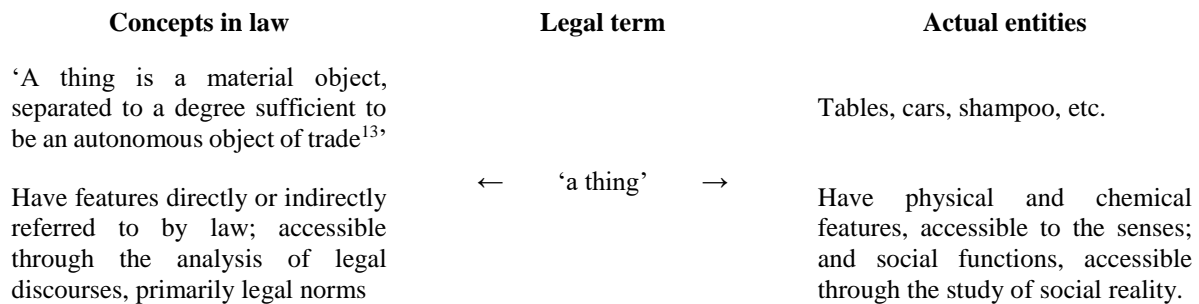


Figure 2. Legal term refers to both a legal concept and the actual entities

In order for the law to be able to regulate some types of objects directly, law needs to have concepts which encompass these types. It is hardly a problem to rephrase 'Carl bought a panino' or 'Giovanni photocopied an article' in legal language. However, if one tries to rephrase: 'Carl sent Herbert 10 bitcoins' or 'Ronald bought a power-up in the Angry Birds app', one will soon see that numerous problems emerge. What is bitcoin in terms of law? Money? A chose in possession/ in action? What is an in-app purchase? Is it a contract of sale or of service?

Why does this matter? Because this categorization will define the substance of a private law relationship. If a lawyer classifies bitcoin as 'money', the legal relationship between two subjects that concluded a contract to exchange a panino for 0.01 bitcoin will be different than the one resulting from classifying bitcoin as a chose in possession, or a chose in action. If one treats it as money, then in many jurisdictions the buyer would be obliged to accept an equivalent in another currency; if one treats it as a 'thing' then that would be impermissible, but for example rules on physical and legal defects would apply.

In many ways bitcoin is like money; in many ways it is not. However, in the case of a legal dispute, one needs to classify it somehow, in order to apply existing legal rules. Lawyers, taught to reason *per analogiam*, tend to look for similarities, not differences, and so to stretch the old concepts. As shown above, these concepts usually carry much more meaning than it initially seems. Understanding why the current categorization of the reality is the way it is must come before one tries to understand the reasons behind its failures. And it comes from Rome.

Current conceptualizations of objects in private law discourses

The Romans called objects of rights 'res', and within a complex categorization distinguished between material (*res corporales*) and immaterial objects (*res incorporales*). It is worthwhile spending some time on understanding what they meant (and what they did not) by the latter. In the words of Gaius: *Corporeal things are those, which, by their nature, can be touched, such as land, a slave, a garment. [...] Incorporal things, on the other hand, are such as cannot be touched but exist in law, for instance, an inheritance, usufruct or obligations*¹⁴ (emphasis added). From this exemplification one can see that, on the ontological level, Roman law 'saw' only two types of objects: material things and rights.

¹³ Wojciech Katner, 'Przedmioty Stosunku Cywilnoprawnego [Objects of Private Law Relations]' in Marek Safjan (ed), *Prawo cywilne - część ogólna* (CH Beck 2007).

¹⁴ Citation after: Mousourakis (n 1).

On this ontological level, not much has changed in law since Roman times, while reality has transformed drastically! The material/immaterial distinction still remains lies at the core of categorizations. This can be demonstrated by referring to examples of English and Polish law, representing respectively a common and a civil law tradition.

Both systems create their categories in a positive-negative dualist manner, by first defining a category, and then placing ‘everything that remains’ in a second, ‘residual category’. English law, never codified and still echoing the system of feudal tenure, distinguishes between real property (‘realty’, freehold in land) and personal property (personalty, everything else), dividing the latter into chattels real (leasehold interests in land) and chattels personal (again, everything that remains). Finally, chattels personal are divided into ‘choses in possession’ (tangible objects that can be possessed) and ‘choses in action’ (everything that remains, so presumably, intangible objects, further divided into documentary intangibles and ‘pure’ intangibles¹⁵). Additionally, a specific spot is occupied by money, sharing both properties of choses in action and choses in possession.

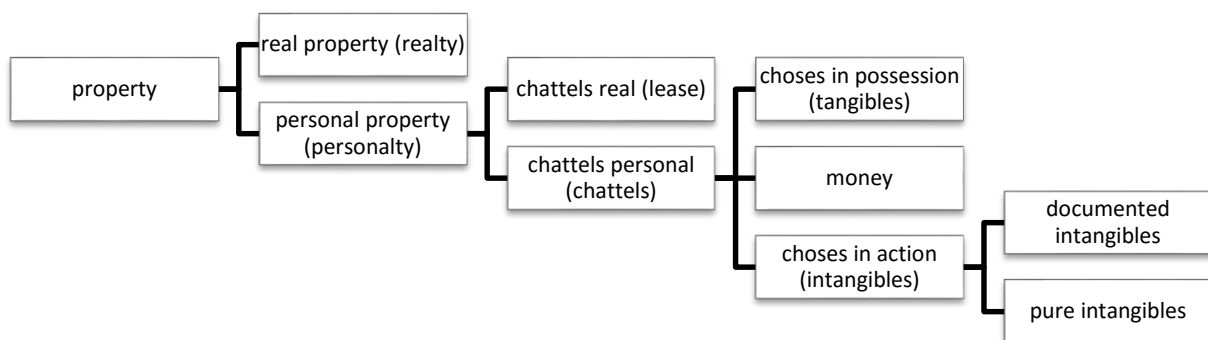


Figure 3. Categories of property in English law

Polish law uses different criteria. First the Civil Code distinguishes ‘things’, delineated as ‘material objects only’ in the art. 45 of the Polish Civil Code, and further defined as ‘elements of nature distinguished in a sufficient way to be separate objects of trade’ by the doctrine¹⁶; and immaterial goods, defined as everything that is not a thing¹⁷, and so everything that is intangible. A special place, again, is given to money. Things are further divided into immovables (land and buildings) and movables (everything that is not immovable), while immaterial goods form a residual category, where *inter alia* objects of intellectual property (works, inventions, trademarks), rights and ‘personal interests’ serve as examples in the open catalogue. That leaves the following picture (green being the residual category):

¹⁵ Bridge (n 5).

¹⁶ Zbigniew Radwański, Marek Safjan and Zbigniew Banaszczyk, *Prawo Cywilne: Część Ogólna* (2 wydanie, Wydawnictwo C H Beck : Instytut Nauk Prawnych PAN 2008).

¹⁷ Aleksander Wolter, Jerzy Ignatowicz and Krzysztof Stefaniuk, *Prawo Cywilne. Zarys Części Ogólnej* (LexisNexis 2001).

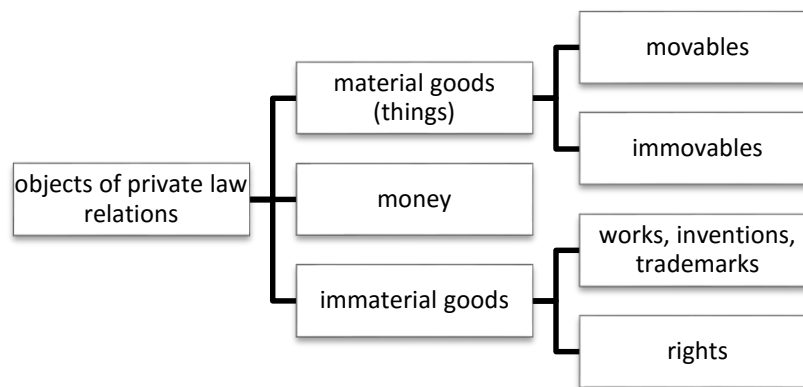


Figure 4. Classification of objects in Polish private law

Even though these pictures appear quite different from each other, on a deep ontological level they are almost the same. Polish and English law still see tangible things on one hand, and intangible goods on the other; the latter meaning essentially rights and objects of intellectual property, but always serving as the 'residual category' where everything that is not material would fall.

Objects of intellectual property rights (works, inventions or trademarks) are a novelty in this picture, when contrasted with Roman law, but they did not harm the categorization, since they themselves cannot be damaged, transferred or destroyed, and what is valuable and protected is the right over them (copyright, patent etc.).

However, the 21st-century reality governed by private law has changed dramatically. If one adheres to the categorizations above, very different entities such as dematerialized money or choses in action, computer files, domain names, virtual property, in-app purchases, personal data etc. would all fall within the category of immaterial goods/choses in action.

Why is this problematic?

How can private law can 'get it wrong'

The application of a conceptual framework inadequate to the new reality, or an attempt to create new concepts without sufficient methodological reflection, leads private law scholars and practitioners to undesirable and inoperable conclusions. I justify this claim by pointing to the typical fallacies: confusion about immateriality of objects and immateriality of their carriers, confusing objects of rights with rights themselves, terminological confusion and unfounded assumptions about features of objects due to 'conceptual stretching'.

'Intangibility of content' vs. 'intangibility of carriers'

The terms 'immateriality' and 'information' became ambiguous when entities started taking 'immaterial', meaning digital, form.

Traditional immaterial objects of private law relations, like literary works or rights (and to some extent money), must sometimes be embedded in physical carriers. The incorporation of a literary work into a carrier (a copy) necessarily precedes an agent's ability to read it. A share in a company, a bill of lading, a check etc. must take a paper form¹⁸, because the lawmaker stipulates so, yet they still are immaterial

¹⁸ Not any longer. But let us, for a few more paragraphs, assume that we are before the era of dematerialization.

themselves (so called documentary intangibles¹⁹). They are immaterial, because they are social objects, and neither does their value come from the paper they are embedded in, nor does their function in any way depend on the features of that paper.

This is different from many physical objects. Screwdrivers, for example, are screwdrivers because this social function was collectively imposed on them, but their ability to perform their functions depends on the intrinsic features of the physical objects²⁰. One can drive in screws with a screwdriver because of their shape and the material they are made of, but one can pay with money, claim the cargo or exercise a shareholder's rights regardless of whether the money, a bill of landing or a share are incorporated in paper, in stone, or in dematerialized form. That is why documentary intangibles can easily be 'dematerialized' and screwdrivers or footballs cannot. One cannot drive in screws with a dematerialized screwdriver.

'Immaterial' rights or works are 'immaterial' in a completely different way to their 'immaterial' copies or carriers. Yet, law does not have words for that. Let me show this with an example.

In his article *Property in the Information Age*²¹ John Mummery analyzes the case *Fairstar Heavy Transport NV v Adkins*²², where a Mr Adkins, the chief executive of *Fairstar*, is sued by the company that claimed property in the content of the emails which Mr Adkins kept on his personal computer and to which he refused access. Mummery asks whether there can be 'property' in information, whether *Fairstar* had a right to claim that Adkins transfer the emails back, because *Fairstar* owned the information contained in those emails. Both the court's and Mummery's answers are negative.

This case exemplifies the confusion I am talking about. Imagine the case had taken place 30 years ago, and instead of taking the company's emails, Mr Adkins had taken regular, paper mail. In such a case, *Fairstar* would not have sued for information, but for the letters, tangible choses in possession, that it undoubtedly would have owned. The question of owning the information embedded on the paper would not have even come up. The problem lies in the fact that emails both contain information (in which *Fairstar* was interested) and *are* information, are made up of bits, so exist as information, but in the sense of 'information technology' and not 'information asymmetry'. 'Information' itself has become ambiguous, and currently means both the content and the carriers of the content. But the difference is extremely important.

Consider a second example, this time a hypothetical one, of a cloud file storage service, like Dropbox or Google Drive, deleting one's files without prior notice nor stating the reasons. Assume that the contract is silent about such an action. Would one be able to sue the service provider to 'give' the files back? Can there be 'property' in a computer file? What is a computer file? As long as copies of works or databases were tangible, these problems were taken care of by ownership. If instead of cloud computing one concluded a traditional storage contract, and the storing company destroyed/stole the choses in possession, there would be no question about their proprietary liability.

The crucial distinction here is between the 'intangibility' of an object itself and the 'intangibility' of a carrier of that object('s copy). For copies of shares and money, computer files etc. are 'immaterial' in the sense that they cannot be 'touched', are not made up of particles (hardware storing the bits is); but are 'material' in a sense that they can be, for example, destroyed by a physical action, unlike rights or poems 'as such'.

¹⁹ Bridge

²⁰ I rely here on the theory of J. Searle, presented in: Searle (n 11).

²¹ John Mummery, 'Property in the Information Age' in Barr (ed), *Modern Studies in Property Law*, vol 8 (Bloomsbury 2015).

²² *Fairstar Heavy Transport NV v Adkins* [2013] EWCA Civ 886.

The peak of this confusion is the concept of the 'digital content', defined as 'data which are produced and supplied in digital form' by the article 2(11) of the Consumer Rights Directive²³. 'Data' here means everything and nothing. Just as this concept may serve well for the purposes of B2C contracts, it adds literally nothing to the wider debate, especially when 'property' is concerned. It somehow allows the law to perform the first function of concepts (referring to reality), but at the cost of giving up on the second one (serving as inferential node) in any sphere other than contract law.

Immaterial objects vs. rights over those objects

Let me give a third example from my field of research: 'virtual property'. Despite its widespread and high value, the concept might still be hard to grasp for those who do not participate in it. In short, 'virtual property' denotes the items that people control ('possess') in simulated, virtual environments like *Second Life* or *World of Warcraft*. Within such environments, users create their own 'avatars', representations, and are able to collect different types of items, like cars, swords, clothes, etc. which are useful and valuable for them, can be separate objects of trade, but exist only within those services and as long as those services are being provided.

One of the first scholars to grasp the legal relevance of this phenomenon was Joshua Fairfield²⁴. In one of his articles, trying to rebut the criticism of 'virtual items' not being real, he wrote:

One might argue that courts cannot apply real-world property law to virtual worlds because virtual objects and land simply do not exist. Virtual property is just an entry in a database. **But it is important to realize that real-world property does not exist either.** Property law is a consensual hallucination that maximizes profitable use of land and minimizes conflicts over resources. There are no yellow, dotted lines between countries, as appear on a map. Neither is there some invisible yet intrinsic dividing line between one person's land and another's²⁵.

Fairfield confuses the object of right with the right itself. When speaking of 'real-world property' he means 'property rights', which indeed exist as social objects, making them ontologically subjective, but still objective in the epistemic sense²⁶, contrary to the objects of these rights. However, when he speaks of 'virtual property' he means the objects, the virtual items. This parallel does not hold, because the mode of existence of rights and virtual items is dramatically different. For land 'exists' in the sense that it is there regardless of human perception (or at least natural since assumes so), property *rights* 'exist' as a social construct backed by law, and virtual items 'exist' in the sense that a service sustaining their existence keeps being performed.

This is surprising, one might say, but happens more often than one could imagine. To give another example in the same strand, in 2008 a law student at the Warsaw University successfully defended a master thesis where he claimed that an online account in a gaming service is a private right²⁷. Literally. Whatever an account is, a user might (or might not) have a right *over* it, but the account is not *a right itself*. That a student wrote this is one thing, but that not a single professor sitting in the defense panel questioned this statement, begs a question: why?

My answer is: they tried so hard to make the new phenomena fit into the existing concepts that an absurd conclusion still seemed the most plausible one. On the more general level: this example demonstrates

²³ Directive 2011/83/EU of The European Parliament And Of The Council of 25 October 2011

²⁴ Joshua AT Fairfield, 'Virtual Property' (2005) 85 Boston University Law Review 1047.

²⁵ Joshua AT Fairfield, 'Anti-Social Contracts: The Contractual Governance of Virtual Worlds' (2007) 53 McGill Law Journal.

²⁶ Relying again on the distinctions presented in: Searle (n 11).

²⁷ Jacek Pakuła, 'On-Line Games Accounts in Legal Relations – Crucial Issues' (Thesis, 2009) <http://prawo.vagla.pl/files/mgr_j_a_pakula.pdf>.

that conceptual mistakes are easily made when facing a reality which cannot be described by the existing concepts.

Terminological confusions

Let me dwell on the example of ‘virtual property’ a little longer, for it exemplifies two more fallacies often committed in the legal scholarship.

The literature on the subject is confused on two fundamental levels: delineation of scope and the ontology of the object of inquiry. Firstly, scholars who use the term ‘virtual property’ (or a similar one, never, however, claiming to make a distinction) in supposedly the same normative debates (by cross-referencing each other), actually often refer to different types of objects. A set of examples can be seen in the table below:

The term	The set of objects referred to by the term
virtual property	‘Items within persistent on-line games’ ²⁸
virtual property	‘URLs, email accounts, chat rooms, in-game assets’ ²⁹
virtual goods	‘items within multiplayer online games’ ³⁰
virtual property	‘An email address, a website, a bidding agent, a video game character, or any number of other intangible, digital commodities’ ³¹
virtual property	‘Avatars, domain names, virtual chattels (in-game items), intellectual property (!)’ ³²

Figure 5. Scope of inquiry under label of ‘virtual property’

Further, even among those who agree they refer to the same set of objects (items within virtual, online environments), a significant confusion about what those items ‘actually are’ is visible. In the table below I present the *definienda* of ‘definitions’ of ‘virtual property’ extracted from several papers dealing explicitly with in-game items:

²⁸ F Gregory Lastowka and Dan Hunter, ‘The Laws of the Virtual Worlds’ (2004) 92 California Law Review 1.

²⁹ Fairfield (n 23).

³⁰ Allen Chein, ‘A Practical Look at Virtual Property’ (2006) 80 St. John’s Law Review.

³¹ Charles Blazer, ‘The Five Indicia of Virtual Property’ (2006) 5 Pierce Law Review.

³² Jennifer Gong, ‘Defining and Addressing Virtual Property in International Treaties’ (2011) 17 Boston University Journal of Science & Technology Law.

What virtual item is:	Article's title and reference
Code	<i>Virtual property</i> (Fairfield, 2005) ³³
Bitmaps and textures	<i>Dragon Kill Points</i> (Fairfield & Castronova, 2006) ³⁴
Entry in a database	<i>Anti-Social Contracts: The Contractual Governance of Virtual Worlds</i> (Fairfield, 2007) ³⁵
Entry in a database	<i>The Laws of the Virtual Worlds</i> (Lastowka & Hunter, 2004) ³⁶
Lines of computer code	<i>Virtual justice</i> (Lastowka, 2010) ³⁷
Representations of places and objects	<i>It Really Is Just a Game: The Impracticability of Common Law Property Rights in Virtual Property</i> (Lawrence, 2007) ³⁸
Collage of graphical images, Combination of pre-defined code	<i>Sales of in-Game Assets: An Illustration of the Continuing Failure of Intellectual Property Law to Protect Digital-Content Creators</i> (Stephens, 2002) ³⁹

Figure 6. Definitions of 'virtual property'

'Code' is not 'representations', nor are 'bitmaps and textures' 'entries in databases'. The above-mentioned scholars, even though they have (tacitly) agreed on the same scope of inquiry, have fallen into the trap of not understanding the phenomenon they set out to define.

This is because they use a term without having theorized the concept first or made an empirical study of the phenomenon. In other words, they have failed to understand what are they making normative claims about.

Unfounded presupposition about the new objects' features

The last fallacy, also from the field of virtual property, aims to demonstrate how placing a new type of object within an old concept might lead to unintentionally assuming untrue propositions about the object.

In the two seminal articles starting the debate, *Virtual Property* by Joshua Fairfield and *The Laws of the Virtual Worlds*⁴⁰ by Greg Lastowka and Dan Hunter, the authors claimed that property rights should be granted on the virtual items, because those items, despite intangibility, are essentially just like the tangible things. Fairfield claimed that just like choses in possession (and unlike objects of copyright) virtual items are rivalrous, persistent and interconnected⁴¹; similarly Lastowka and Hunter claimed that

³³ Fairfield (n 23).

³⁴ Joshua AT Fairfield and Edward Castronova, *Dragon Kill Points: A Summary Whitepaper* (2006).

³⁵ Fairfield (n 24).

³⁶ Lastowka and Hunter (n 27).

³⁷ F Gregory Lastowka, *Virtual Justice. The New Laws of Online Worlds*. (Yale University Press 2010).

³⁸ Dan E Lawrence, 'It Really Is Just a Game: The Impracticability of Common Law Property Rights in Virtual Property' (2007) 47 Washburn Law Journal 505.

³⁹ Molly Stephens, 'Sales of N-Game Assets: An Illustration of the Continuing Failure of Intellectual Property Law to Protect Digital-Content Creators' (2002) 80 Texas Law Review.

⁴⁰ Lastowka and Hunter (n 27).

⁴¹ Fairfield (n 23).

since virtual items are ‘just like things’, people should be granted property rights to them⁴². Then, relying on several normative theories, they concluded that the lawmaker should grant property rights on those objects to their users.

Tese normative arguments shaped the debate that followed, centering on whether these authors had correctly applied the normative theory to the factual situation.⁴³ However, no one has challenged the facts, the descriptive propositions necessarily underlying the normative assessment; and no one asked: what would these property rights actually look like?

Since these authors concentrated on similarities and not on differences, due to the reflex to use the old concepts, here ‘chooses in possession⁴⁴’, they overlooked the critical dissimilarities. To give just a few examples: assuming that one grants property rights over those objects, how would these rights be enforced? Physical force would not be possible (unless the state employs hacker-bailiffs...); the service provider, having access to the code and databases, would have to be involved. How would disputes be settled? If the phenomenon is global, should one try to rely on the existing court system (imagine the value of the dispute is 200 euros, but parties are in Italy and Peru); or should one rely on the service providers? Where would those rules come from?

My point here is: if one just places the new type of object within the framework of an old concept, one faces the danger of overlooking the critical differences, and at the same time ‘projection of features of the concept’ on the object, essentially making it impossible to apply the concept, because the formal guarantees of a private right are not in place.

Why does all this happen?

There is a lawyerly reflex to use an existing legal concept in order to describe a new type of entity. Lawyers reason *per analogiam*. Conceptual frameworks created by Romans and the 19th century Codifiers do the job they were created for very well. We teach lawyers how to *use* concepts, but no longer how to *create* them.

It has been demonstrated that to regulate reality, law needs to refer to it through concepts and, moreover, those concepts must be general and abstract for the law to be so. These concepts are given meaning by the totality of legal rules they are embedded in, and the choice of a concept to speak about reality matters significantly. The existing concepts come from the times before the digital revolution, and so there is a reflex to place all the new types of objects into the residual category of immaterial goods. This, however, given the difference between features of objects assumed by the existing legal concepts and the features of the actually existing objects, leads to absurd and not very useful conclusions.

In consequence, new concepts are needed. We need to ‘act like Romans’ did, to empirically study and conceptualize the actual reality of ‘having and trading’. But how does one create new legal concepts? This is the subject of the following part.

⁴² Lastowka and Hunter (n 27).

⁴³ See e.g. Steven J Horowitz, ‘Competing Lockean Claims to Virtual Property’ (2007) 20 Harvard Journal of Law & Technology 16; Blazer (n 30); Cristopher Cifrino, ‘Virtual Property, Virtual Rights: Why Contract Law, Not Property Law, Must Be the Governing Paradigm in the Law of Virtual Worlds’ (2014) 55 Boston College Law Review 29.

⁴⁴ To be fair, neither Fairfield nor Lastowka&Hunter claimed that virtual items *are* choses in possession. On the contrary, they proposed a creation of a new concept, ‘virtual property’, but the way they went about creating it assumed a complete parallel.

Part two: The toolkit

This is the part about the legal method. I propose an answer to the question: 'How to internalize the existence of new types of objects of private law relations into private law discourses?'⁴⁵ In other words, I propose a method of answering questions like: 'What is/should be X [a new type of object, e.g. bitcoin, virtual item, in-app purchase, personal data] in terms of private law?'.

The toolkit proposed here aims to be useful both for legal scholars and legal practitioners. It aims to be useful both for the *de lege lata* application of existing laws, when lawyers must conceptualize the facts and make sense of them in order to apply specific provisions or, when impossible, general principles derived from them; and *de lege ferenda* postulates about how law should be changed. It aims to be useful for describing, conceptualizing and naming new types of objects, for any legal purposes.

The key point to stress, given the ambiguity of the term 'legal method', is: unlike the methods suggested by Savigny⁴⁶, I do not propose a way of thinking about law. I propose a way of thinking about the reality that law aims (or wonders whether) to govern.

I propose a three-step tool: terminological clear-up, the 'mode of existence' lenses and the 'means of enforcement' analysis.

Tool 1: Terminological clarity

The first task is to clear up the concepts and the terminology. When one uses a term 'X', what does one mean? What exactly are the objects denoted by the term? Many of the problems signaled in the previous part, and more generally many problems in (legal) scholarship, originate from scholars talking past each other, ascribing different meanings to the same term and then assuming they are discussing the same issue. To be precise: I do not claim that one should start with a definition of a concept; such a definition will rather be a *final* product of the whole three-step exercise. What I claim is that one should just be as clear as possible about what one means when using a term.

The tool of terminological clarity serves two functions: communicative and analytical. Communicative function is important for the quality of an academic/judicial discourse. Scholars and judges might (and will) disagree, but they must understand what exactly they are disagreeing *about* for any progress to happen. However, the latter function is more important here. When one consciously asks oneself 'what do I mean by an 'X' term', in other words: 'what could be the meanings and which one do I choose?', one shall see the whole range of potential designates, the whole set of ontologically different objects that beg explanation. Let me exemplify.

When speaking of 'property' in domain names, does a 'domain name' mean 'a string of symbols', e.g. przemekpalka.wordpress.com or does it mean 'a possibility to make one's website available when using a particular string of symbols as an address?'. A string of symbols is an abstract object, while the latter is an effect of a whole institutional and infrastructural framework in place. Why would that matter? Assuming one means the former, when a domain provider stops providing a service and the address is unusable, there is no breach of property right, for no one else is using the string of symbols. So the delineation seems incorrect.

Or when one speaks about 'information', does one mean 'knowledge about a set of facts' or 'fixation of that knowledge' or a 'digital form'? 'Property' in each of those different types of objects would mean a completely different social ordering. This needs to be cleared up.

⁴⁵ The method can be useful, *mutatis mutandis*, for all four legal discourses: legislative, judicial, doctrinal and theoretical, as described in: Sartor and Fernandez-Barrera (n 4).

⁴⁶ For a rigid demonstration of what is traditionally meant by private law method and what I do not mean here, see: Joachim Rückert, Ralf Seinecke and Lena Foljanty, *Methodik Des Zivilrechts: Von Savigny Bis Teubner* (2 Auflage, Nomos 2012).

Tool 2: The ‘mode of existence’ lenses

Having explained what one means by a term, one can study the features of an object denoted by the term. These should be legally relevant features, and legally relevant features are those which matter for the substance of a potential legal dispute, when one questions the ‘owner’s’ right to do something with an object, or when the ‘owner’ aims to exclude someone else from doing something to/with the object. How to determine them?

When one studies a particular type of an object (e.g. personal data or an in-app purchase), I propose asking a series of questions regarding the way in which it exists. The questions are grouped in three categories. The first group concerns the ‘extreme’ situations of (un)being, asking how did an entity come into being, how does it continue to be, and how could it cease to be? The second group concerns the ‘potential’ conducts having an entity as an object, aiming at providing a clear picture of what could a potential right be protecting it from. The third group is a legal synthesis of the previous two, an intellectual exercise, trying to imagine the fullest possible negative and positive rights. The answers to these questions give the researcher a ‘the top of the scale’ from which, based on normative considerations, potential legislator could go down while specifying the substance of a right.

I summarize the method in the table below:

Type of an entity:	
1a	How did it come into being?
1b	How does it continue to be?
1b ₁	Is anyone’s action required
1b ₂	Is anyone’s recognition (agreement) required?
1b ₃	Is anyone’s knowledge required?
1c	How could it cease to be?
2a	What could be done with an entity?
2b	What could be done to an entity?
3a	What would be the fullest possible positive right?
3b	What would be the fullest possible negative right?

Figure 7. The ‘mode of existence’ lenses

Note that these questions are themselves research questions that require a proper method to be applied when answering them. Sometimes this method will be an intellectual exercise, sometimes (especially with digital objects) it will require an empirical study of the phenomena under analysis and/or consulting sources of technical nature (e.g. understanding the technology behind bitcoin or virtual items or mobile apps must come before this exercise can be conducted.)

The result of this analysis serves as a basis for the *substantive* law considerations. However, the success of an attempt to order the reality through the system of private rights depends on a well-crafted system of *formal* guarantees of remedies and procedures, of dispute settlement and of enforcement.

There is a dialectical relation between substantive law and enforcement; the latter should enable exercising the former, but the former should take into account the limitations of the latter. To give an example: if one’s right to one’s image has been breached, e.g. by creation of a ‘meme’ that went viral on the internet, it might sound like a good idea to grant a right to have all those unauthorized copies deleted. Copies can be deleted, granted. But assuming that thousands of people ‘sharing’ them refuse to comply, could it be enforced? What are the costs of such an enforcement? What would it look like?

This is the role of the third tool.

Tool 3: The 'means of enforcement'

The third tool, being a secondary one to the analysis performed using the previous one, is yet another intellectual exercise, trying to simulate the enforcement of the fullest potential property right, going 'backwards', starting with enforcement, and then going 'back' to dispute settlement and law-making. It, again, consists of a series of questions. Assuming the fullest potential right has been granted and breached, how would it be enforced if the third party fails to comply with the order? Where could the order come from? Based on what rules? Coming from where/whom? The role of this tool is to guarantee the usability of the concept stemming up from the application of the previous one.

Take an example of a simple *in rem* action enforcement. If I steal Carl's bike and refuse to give it back, Carl can sue me in a court of law. The court will issue a judgment obliging me to give it back. If I refuse, Carl will ask the court to issue an enforcement order, and if I still refuse to give the bike back, finally a bailiff will come with police and physically take it away from me, if necessary, using physical force.

Now consider a similar situation within a virtual world, like *Second Life* or *World of Warcraft*. Assuming Carl has a property right in his virtual bike, as many scholars mentioned above claim he should, meaning: he can use it and exclude others from using it, including also *in rem* vindication claim; and assuming I borrow it from him and refuse to give back; how would that be enforced? There is no way that a public agent can do so by *force*. Everything happens within the digital environment, a third party's service. The service provider must be involved in the enforcement. But if he or she refuses to cooperate? For the right to make any sense, the service provider would need to be legally obliged to take part in the enforcement procedure. This costs money.

If one further considers the questions of the origin of the decision (a court? if a dispute is worth 200 euro, but parties are in Italy, USA and Peru?) as well as the legal basis of the decision (international treaty about virtual items?), one might conclude that substantially sound property right makes no sense in the real world, given the limitations of formal rules, limitations caused by the features of an object itself. Another solution, such as legally obliging service providers to create a private dispute settlement system themselves, might be necessary.

A potential right like the one elaborated above (an inoperable one) can only be considered if one does not have a full picture of a type of an object under consideration. In other words, when one uses a wrong concept. Coming back to the analysis of section 1.2.: the considerations above allow us to define a type of object in a way that takes into account the fact that such a concept will need to serve as an inferential node in legal reasoning. These findings must, therefore, be made explicit before any normative proposition (political, judicial or scholarly) can be made.

In the next part I put this toolbox to use, both as an illustration of how can this be done, and as an initial move towards a new categorization of objects of private law relations.

Part three: The toolkit applied

The aim of this part is to apply the toolbox proposed in the previous part, in order to illustrate how this can be done, and to collect substantive data for an initial re-categorization of the objects of private law relations.

I analyze two examples: personal data and ‘virtual property’ (items within simulated online environments).

I should be noted that the method and the toolkit I propose can be applied to analyze both the ‘new’ and the ‘traditional’ objects of private law relations. The new categorization of objects, proposed in Part Four, takes into account the results of such a wide application. However, in this piece, I limit myself to a thorough analysis of only the two abovementioned examples.

Information and personal data

The important role that information plays in commerce and trade has long been acknowledged in the private law scholarship⁴⁷. However, what has changed with the digital revolution is that information (most prominently personal data) has become a commodity, a valuable asset, that is traded in B2B relations; and used as ‘currency’ in B2C by the consumers using ‘free’ services like those offered by Facebook or Google. Big data, targeted advertising, profiling any many other uses lead to enormous incomes. In the words of a European Consumer Commissioner Meglena Kuneva, ‘*Personal data is the new oil of the internet and the new currency of the digital world*’⁴⁸.

The schizophrenic position in which private law finds itself is that, on one hand, all the actors on the market act as if they had ‘property’ in personal data, users pay with it, business trades it and profits from it; while, on the other hand, statutory law, case law and legal scholarship keeps saying that there is no property in personal data.

The Personal Data Protection Law is well suited to perform other tasks: guaranteeing data’s security and integrity, creating regulatory supervision, protecting the fundamental right’s from the states’ conduct. It does not, however, help in any way in the reality of business where people sometimes want to ‘spend’ their data in exchange for particular services.

The most general reason to grant data subjects *erga omnes* private rights (‘property’) over their data is the creation of private law relationships. If you own a mug and I take it away from you, law sees a private law relationship, where you have a right to claim it back, and I have a duty to give it back. But if you give me your data for the purposes of shipping and then I start sending you target advertising based on the profile I have created, *de iure* we are not in a private law relationship where *data* is the object, while we are in it *de facto*.

Whether to grant such a right or not is a normative question. But what would that mean?

Personal data, step 1: terminological clarity

What does one mean by ‘personal data’ when considering granting a property right over it? The Directive’s definition: ‘*any information relating to an identified or identifiable natural person (...)*’⁴⁹ is of little help, given the ambiguity of the term ‘information’.

⁴⁷ To mention just the classics: Friedrich August Hayek, ‘The Use of Knowledge in Society’ 35 The American Economic Review; George Akerlof, ‘The Market for “Lemons”: Quality Uncertainty and the Market Mechanism’ 84 The Quarterly Journal of Economics.

⁴⁸ Full speech available at: http://europa.eu/rapid/press-release_SPEECH-09-156_en.htm, last access 10th November 2015

⁴⁹ Directive 95/46.

At least four types of objects are possible candidates here: facts (object's/subject's properties), knowledge, statements of facts, and fixation of statements (stored knowledge). Let me exemplify:

I am Polish, male, 26 and like ice cream. Those are facts about me, my 'properties', and are the case regardless of anyone knowing that. Further, one can learn about those facts (through observation, receiving statements or deduction from incomplete both). Thirdly, one can state the fact, by saying: 'Przemek is Polish, male, 26 and likes ice cream'. Fourthly, one can fix that statement by writing it on paper, recording voice or inserting into a digital database.

An important observation is that data (or statements about data) can be fixed in various forms: on paper, recorded as voice, but most importantly from the market perspective in a digital form, stored both locally (on a computer not connected to an open network) and on-line (using cloud computing, outsourced data processors etc.).

In consequence, 'processing data' (to use PDPL's vocabulary), will mean operations ('doing something to/with') on these ontologically different types of objects.

Personal data, step 2: 'mode of existence'

The second step begins with a simulation of potential legal disputes concerning the object under study. This can be done by relying on existing cases, both court decisions and press releases, and a thought exercise of what type of conduct directed at the object might lead to a legal dispute, to the subject's decision of suing a party infringing his or her 'property'.

There are two general types of subjects potentially claiming 'property' in the personal data: data subjects themselves and data controllers, processing data not about themselves. In consequence, two types of relations concerning data as an object are possible: connecting data subjects with data controller; or data controller with another (potential) data controller. Assume a natural person X, a company G collecting and processing data about X, and another company M obtaining the data collected by X and later using it.

How might disputes between these subjects within these relations look like? Let us first consider the data subject's position. Her data as facts come into existence indirectly, through her or someone else's actions or events, some intentionally (e.g. occupation), some unintentionally (e.g. birthplace). X might want to share her data, e.g. on Facebook (fix in a particular medium), or transfer to someone (transmit the knowledge through a statement). It might be that someone questions her right to do so, and so the fullest possible positive right would encompass ability to state or transfer her data to whomever she chooses.

More important, however, from the market perspective, seems to be the negative dimension of 'property'. It might be that X opposes the fact that: Company G collects data about her, stores data about her, uses data about her, uses the data about her *in a particular way*, makes data about her available to the public, transfers such data to another subject, stores this data on a non-secure medium. And probably many more. The fullest possible negative right would be to exclude anyone from performing any of these operations.

Note that these observations concern different ontological levels from the previous section's analysis. Using data is processing of knowledge, while storing it on a non-secure computer is an operation on the fixations.

The other problem is a 'property' right in personal data that a subject different from the data subject might claim. Assume company M starts to process X's data, and G questions legality of that. The difficulty here is that: if one wishes to grant data subjects property over their own data, meaning also a right to alienate (knowledge or fixations), the recipient of data will also have some property right on it; including the right of exclusion. The parallel with copyright seems a good one at first sight: there is a difference between transferring the right itself (what is hard to imagine in case of personal data) and

granting a license, having only a limited *erga omnes* effect. However, the difference is that the ‘commercial use’ of personal data is much harder to detect, especially from the perspective of a third party.

I summarize and refine this in the table below:

	Type of entity:	Fact	Knowledge of a fact	Statement of a fact	Fixation of the statement
1a	How did it come into being?	Together with an object/subject	Through observation or receiving a statement, or deduction from incomplete both	Knower making a statement	Fixed in a tangible or digital medium
1b	How does it continue to be?	By subject not changing	By knower’s persistence	-	Through the persistence of the medium
1b ₁	Is anyone’s action required	NO	NO	-	Might be (if medium is secondarily existing object)
1b ₂	Is anyone’s recognition (agreement) required?	NO	NO	-	NO
1b ₃	Is anyone’s knowledge required?	NO	YES	-	NO
1c	How could it cease to be?	With subject chaning or ceasing to be	Knower forgetting/ ceasing to be	-	With destruction of the medium
2a	What could be done with an entity?	It could be transformed into one of the objects on the right: knowledge or statement	Knowledge can be stated, fixed or used (acted on)	Can be fixed	Processed in a way allowed by the medium
2b	What could be done to an entity?	Nothing, it can be ‘destroyed’ only by changing the subject	Nothing, it can be destroyed with the knower	-	Erased/ changed/ deleted
3a	What would be the fullest possible positive right?	To transform into knowledge/ statement and act on it	A right to act based on knowledge (from the knower’s perspective)	-	To keep the fixation, process it, obtain the knowledge
3b	What would be the fullest possible negative right?	To exclude everyone from a possibility of learning about the fact	A right to forbid anyone from acting based on the knowledge, stating or fixing it	-	To exclude anyone else from accessing the fixation

Figure 8. ‘Mode of existence’ applied to personal data

Personal data, step 3: the ‘means of enforcement’

The analysis above shows that depending on how one defines ‘data/information’ and which of the ‘ontological levels’ one wishes to choose, the remedies and enforcement procedures paired with ‘property right’ in it will vary.

If personal data is understood as 'knowledge', then acting upon it or transferring it would violate the 'property', but mere 'having' it stored as fixations would not. If, however, one wishes to extend the understanding to fixations of statements or knowledge, the fact of 'having them stored' in an electronic system will itself constitute a violation of 'property'. Enforcement of the first, meaning essentially prohibiting further use (probably paired with financial sanctions) would technically be much easier and cheaper than enforcement of the latter. Forcefully deleting data, in the age of internet, clouds and outsourcing, could only be done with full cooperation of these services' providers.

The next questions, on the sources of law and dispute settlement, also lead one to conclude that mere national lawmaking is not sufficient, and a more global approach (like the current personal data protection framework of the EU, or potentially bilateral treaties with third party countries), would be needed. This raises questions of competence.

The difficulty of using these types of instruments forces one to consider whether different approaches, like the self-regulation of business, responding to educated consumers (should they be educated then? How?) is not an alternative/additional instrument to rely on. To be precise: I am not at all advocating relying on self-regulation of business. I am just pointing to the fact that given the complexity of the problem, a much wider approach might be needed.

Conclusion: personal data concept for 'property' considerations

In consequence, any normative propositions about 'property' in personal data, be it *de lege lata* application of principles existing in law, or *de lege ferenda* arguments about how to amend the law, should take into account the following three observations.

Firstly, the term 'personal data' refers to at least four ontologically different types of entities: facts, statements of these facts, knowledge about these facts and fixations of these statements or knowledge. One should be explicit about what one means when using the term.

Secondly, 'property' in these different types of objects would mean different types of social ordering, as demonstrated in the section above. When advocating granting of a 'property right', meaning 'an *erga omnes* effective right to use and exclude others from use', one should be specific about which of the potential specifications of this statement one advocates or not.

Thirdly, given the fact that the 'usage of personal data' often takes place in a global and digital environment, lawmaking, adjudication and enforcement procedures will need to be created and used on a different level than just the national one, if the right is to be operable. These formal considerations should both inform and correct the analysis on the substantive level.

'Virtual property'

The second type of objects that I want to analyze in this paper is 'virtual property', the items users 'possess' and control within virtual online environments ('virtual worlds', like *Second Life* or *World of Warcraft*), as well as the more recent phenomenon of 'in-app purchases'. These objects range from virtual land, to virtual cars and virtual swords, entities useful for functional or aesthetic reasons, in the simulated online platforms. In short, the market in this new type of goods was estimated to be worth around 15 billion dollars⁵⁰ back in 2012, while the revenues created solely by Apple developers in the so-called app-economy amounted to \$10 billion in 2014, the same amount Hollywood earned from box office revenues⁵¹ that year. On the theoretical level, it exemplifies all the scholarly fallacies elaborated in section 1.4.3, and so is a gentle subject to have the toolbox applied to.

⁵⁰ Source: <https://www.superdataresearch.com/blog/monetization-is-a-four-letter-word/> last access 10th November 2015

⁵¹ Curtis, Sophie, *Apple's apps economy 'as big as Hollywood's'*,

‘Virtual property’, step one: terminological clarity

As demonstrated in section 1.4.3. above, the attempt to analyze ‘virtual property’ by scholars commenced with a great terminological and conceptual confusion. Even when one starts by limiting the scope of inquiry to ‘items controlled by the users of ‘virtual worlds’’, the question remains: what is a virtual item?

Before one can try to imagine a hypothetical dispute, it is important to explain a ‘normal’, not disputed situation. Let us, for now, consider a hypothetical situation when a user of a virtual world service logs into the service and sees a virtual object on her monitor, is able to use it, and to transfer it to someone else. From the inside-service perspective, there is a virtual object – let us use an example of a virtual sword. But what entities are there on the same time? How does this work?

In order to make the description clear and more accessible, the illustration below represents all the elements I will be talking about.

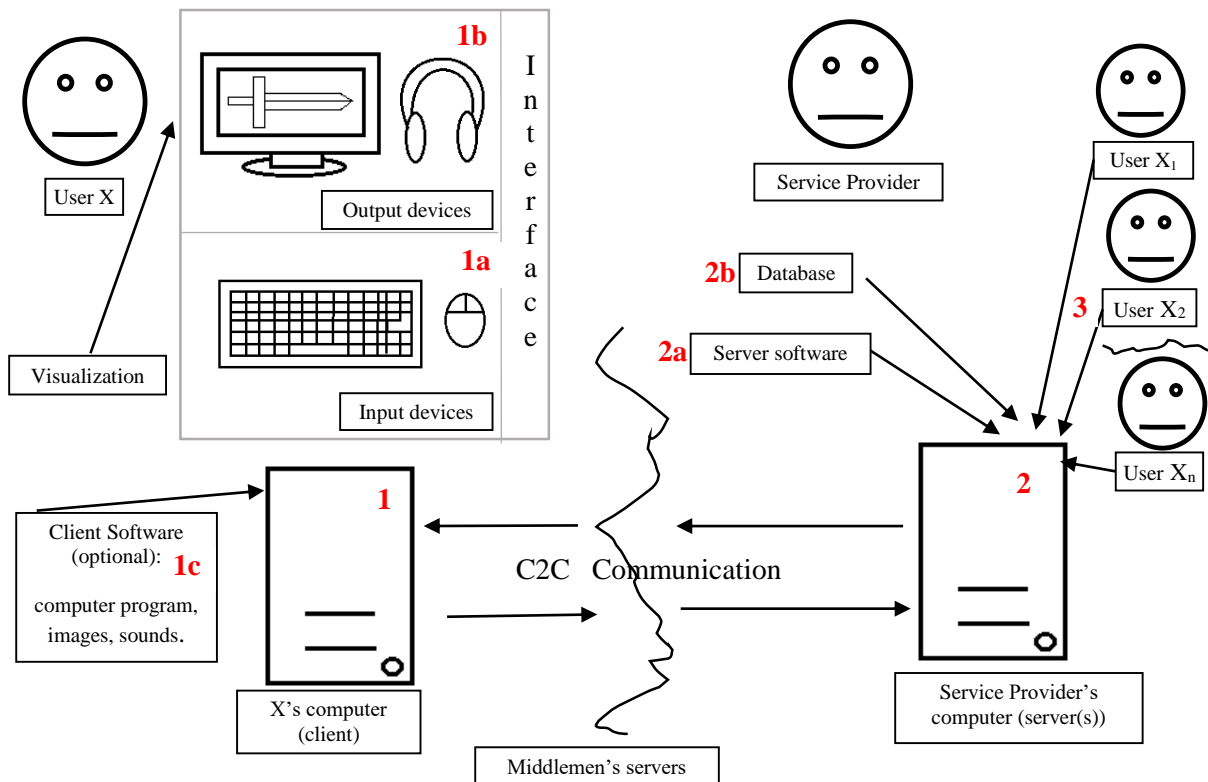


Figure 9. Elements necessary for the virtual item's existence

The vast majority of on-line services in which virtual objects occur, operate based on a client-server architecture. This means that certain tasks are performed on the client device (user's device) and some on the server.

In this hypothetical example, let us call the user 'X'. X's computer is an essential element (1). It is necessary to access the service (which I shall, in this section, be calling a virtual world service). It is not important whether the computer belongs to X or not. It also does not matter if X usually uses the same computer or not. What matters is that to access the service where a virtual object is present, X needs one. This computer is called a client.

X communicates with the client computer⁵² via the interface. The computer later communicates with the server. In this way, the client computer, equipped with user's interface **(1b&1b)**, is a communication tool between X and the service hosted on the server. It enables X to send information and give commands. Whenever she wants to move, to pick up an object, or to use that sword to attack someone etc., she has to use her input devices e.g. mouse or keyboard to communicate that **(1a)**. On the other hand, computer displays information to X via the output devices e.g. the monitor (the graphic interface) or speakers (the sound interface) **(1b)**. Sometimes (if the virtual world is technically more advanced), it is necessary to install software (a game client, **(1c)**) on the client computer (for example, to use services like *World of Warcraft* or *Second Life*). However, this element is not essential. There are services that run within the internet browser only, without the need for any additional software (e.g. *Habbo Hotel* or *Movie Star Planet*). This will be particularly relevant in the phase of legal analysis.

On the other side, there is Service Provider's computer (the server⁵³) **(2)**. As noted before, this type of solution is called a client-server architecture. Performance of all the actions is functionally divided between the server and the client. The server's **(2)** role is to communicate with all the other users **(3)**, perform automated actions based on users' commands, via the software **(2a)** and store the data about the users **(2b)**. Roughly speaking, all the information relevant for users other than X is stored and processed on the server.

All these elements can be listed and divided into several subgroups. They are presented in the table below, where I specify their legal status:

Class	Entity	Right on it
Things	Server	Ownership
	Client computer (with input and output devices)	Ownership
Works	Server software (code)	Copyright
	Database	Copyright/ database right
	Client software (code) (non-essential)	Copyright
Elements of works	A class of an object (visual representation; software)	Copyright
	Particular instance of an object	Copyright (?)
	An entry in a database	?
Visualizations	Visualization (through the interface)	-
Service	Virtual world service (sustaining, monitoring, updating etc.)	Right to access (from users perspective) // provider's rights

Figure 10. The objects necessary for the virtual item's existence

The correct ontology of a virtual item needs to provide an account of all these elements. I have not included actors here, just as I have not included 'obvious' elements (that the world needs to exist, computer factories, schools etc.). Now, the important point is that a virtual item is not any of those elements or a sum of them. It is the whole context that matters.

⁵² The word 'computer' is a general term for different types of devices – including, for example, a smartphone, or a tablet – by now it should be sufficient to accept that it is an electronic device connected to the internet. Also the distinction between input and output devices, in the era of an iPad, might seem outdated – but I believe it is good for the reader to be aware of these different, if not elements, then at least functions.

⁵³ To be precise, there might be numerous computers constituting many cooperating servers. In this simplified model we assume it is one.

‘Virtual property, step 2: ‘the mode of existence’

The virtual items come into being when 1) all the necessary elements are in place; 2) the provider makes the service available to users; and 3) a user obtains an item. In other words, the user’s input is also required. Further, they continue to be because the provider keeps providing the service. Her constant *action* is necessary.

The questions of how the object could cease to be, as well as questions of what could *happen* or be *done* to an object, are more tricky ones. I provide a separate table to illustrate this, below. Let us consider a situation in which a user of a virtual world (X) ‘possesses’ a virtual object, for the sake of illustration a magic sword (and assume that its appearance is also of importance). Its value comes from the fact that the user is now more powerful, can perform actions others cannot; has got something scarce, something others have not; and can potentially sell it. She has spent a lot of time in order to acquire it. Fairfield and Lastowka & Hunter would say: she should get property right protection. What could that mean?

It might happen that one day X logs into her account and realizes that her sword ‘is gone’. This could have been caused by the service provider, who could have either ‘taken it away’ from X (deleting an entry in the database), or taken it away from everyone (deleting a certain class in the software). It could also happen that her sword now looks different (the visual side of the class was changed or a new class was created for X, so that other users still have the previous version, or additional information was added to X’s databases, making her instance only look different) or that it has different properties (again class change in 3 possible variants). It might be that X cannot even log in, because the service provider turned off the servers whether voluntarily or as a consequence of technical problems.

The lack of the sword might, however, also have been caused by a third party. Someone might have ‘hacked’ X’s account and taken it away. Or someone might have ‘stolen’ it from X ‘in-game’ (for example if someone plays a rogue and the game is to a certain extent ‘about’ stealing from each other). Or X might have lent her sword to someone, but he has not given it back. Or X might have ‘sold’ it to someone, but the buyer did not pay the money. I try to summarize this in the table below.

Who acted	What happened ‘in-game’	What happened ‘outside-game’
Service provider	A virtual object disappears	Single user’s database entry deleted
		The whole class of objects deleted from the software
	A virtual object looks different or has different properties	The whole class of objects altered
		The class ‘split’
		Particular user’s instance altered
	Whole virtual world disappears	Servers (computers) turned off/ crashed
Third party	Virtual object disappears	Account hacked – database entry deleted
	Virtual object stolen ‘in-game’	In accordance with game mechanics – database entry deleted and new one made
	Virtual object given away voluntarily (lent or sold)	In accordance with game mechanics and mutual consent – database entry deleted and new one made

Figure 11. What can be done or happen to a virtual item?

There can possibly be more examples, but these provide a good overview on what could happen to a virtual object. Claiming that users should be given a property right protection needs to be merged with answering a 'yes or no' question to protection from every potential danger. But that is a policy problem, and answers might differ.

Let us consider the potential fullest possible negative and positive rights. The former, which in other cases means exclusion of other, would in the case of virtual items encompass a positive claim towards a service provider to keep providing the service (because otherwise the object would cease to exist!). The latter would be to use the object as one pleases (within the service mechanics), and to alienate the object (sell, give away etc.). In light of all this, the summary would look like this:

	Type of entity:	Virtual item
1a	How did it come into being?	All the necessary elements were created, the service provider switched on the service and made it available to the public, and then the user obtained the item within the service.
1b	How does it continue to be?	The service keeps being provided
1b'	Is anyone's action required	YES
1b''	Is anyone's recognition (agreement) required?	NO
1c	How could it cease to be?	The service stops being provided, A table above
2a	What could be done with an entity?	Whatever the code functionally enables
2b	What could be done to an entity?	A table above
2c	What could happen to an entity?	A table above
3a	What would be the fullest possible positive right?	To use as one pleases and to alienate (for example sell)
3b	What would be the fullest possible negative right?	To exclude everyone else, and require the provider to keep providing the service.

'Virtual property', step 3: means of enforcement

The most important observation at this stage is that, since virtual objects exist only within on-line provided services, any 'forceful' enforcement of rights will necessarily involve the service providers, having access to the databases and the code. This might prove especially tricky if a user wishes to enforce his or her right against the provider itself.

Further, given the fully global and digital character of 'virtual world services', reliance on court system when it comes to dispute settlement and/or adjudication might be very difficult. There is a considerable chance that a cost of such a dispute, even if the value of dispute is significant, could prove too high for most consumers to take it. On the other hand, given that service providers have access to all the 'facts' of each case (stored in their databases), obliging them to install dispute system mechanisms might be one of the options.

The question of the pedigree of laws being a base of such a settlement is necessarily connected to it. Since the phenomenon is global, reliance on the national legislatures might not be sufficient; on the other hand, it might be hard to imagine an international treaty dealing with such a seemingly trivial subject. Other methods, like self-regulation or soft law mechanisms, need to be taken into consideration. Regardless of the outcome, however, these difficulties must be kept in mind while proposing substantive law amendments.

Further analysis

As stated at the beginning of this part, a holistic reflection on the theme of the objects of private law relations would require an analysis of all the existing types of private law relations, for which there is no space in this article. In the next part I propose an initial sketch of the findings of such an analysis.

There is a dialectical relationship between the new conceptual framework and the toolkit itself. The latter leads to the former, but the former informs and tests the latter. For this reason, I believe that proposing a holistic re-categorization already at this stage is meaningful, while at the same time obviously open to corrections and changes.

Part four: Re-categorization of objects of private law relations

The purpose of this final part of the article is to propose a potential re-categorization of objects of private law relations. Having demonstrated the danger inherent in the further usage of the material/immaterial distinction, proposed a method of how to create new legal concepts of objects, and applied this method to a sample of two ‘new’ types of objects of private law relations, I synthesize the findings and offer a new, potential way of thinking about different categories of objects⁵⁴.

The re-categorization stands on three pillars: a triad of *res corporales*, *res digitales* and *res incorporeales* replacing the material/immaterial dichotomy; the distinction between objects ‘as such’ and their carriers; and finally the distinction between objects with primary mode of existence and those existing secondarily.

The three pillars

As demonstrated in Part One above, objects existing within computer-operated environments, ‘made-up’ of bits (‘information goods’⁵⁵) stored on hardware, processed by software and ‘interactable-with’ via user-interface⁵⁶ - like computer files, virtual items and in-app purchases - are neither material in the sense in which tangible things are, nor immaterial in the sense in which literary works or rights are.

In consequence, to avoid confusions like claims that ‘an immaterial copy of a book is a *pure* work, without a carrier’ or that ‘gaming account is a private right’⁵⁷, this triad is a necessary, but definitely not exhaustive, first step. Examples are provided in the table below:

Res corporales	Res digitales	Res incorporeales
Choses in possession: Mugs, cars, footballs, etc.	Computer files: mp3 files, pdf files; websites; dematerialized shares in companies, money, bills of lading; virtual items, bitcoin, etc.	Rights, works of copyright, ideas etc.

Figure 12. The triad of res: corporales, digitales and incorporeales

⁵⁴ This is not a dogmatic proposition which I want to be defensive about, on the contrary, I am certain it needs discussion, testing and potentially refinement. It is not a proposition on how to amend our Codes, but rather how to amend our thinking about the reality governed by these Codes. For these reasons, all critical comments are more than welcome.

⁵⁵ See for example: Edward Castronova and Vili Lehdonvirta, *Virtual Economies: Design and Analysis* (MIT Press 2014); Edward Castronova, *Wildcat Currency* (Yale University Press 2014).

⁵⁶ Well conceptualized in: Johnny Hartz Philip; Søraker Brey, ‘Philosophy of Computing and Information Technology’ in A Meijers (ed), *Philosophy of Technology and Engineering Sciences*, vol IX (North Holland 2009).

⁵⁷ Pakuła (n 26).

This distinction is necessary, but not sufficient, because from the point of view of law, there are some critical differences among *res digitales* that must be made explicit. The 'property' in a digital object would mean significantly different social orderings, depending on whether these objects exist in a primary or secondary way.

'Primary mode of existence' characterizes those types of objects that exist 'by themselves', without anyone's action, knowledge or agreement; while 'secondary mode of existence' is a feature of objects that exist due to a third party's action (in the case of some *res digitales*), knowledge (in the case of information) or agreement (in the case of rights or private entitlements). A negative dimension in a 'property' right in these type of objects will always mean just a *non facere* obligation.

Examples of entities with primary mode of existence are tangible things (choses in possession), literary works 'as such' or information as facts (abstract objects, existing in a 'metaphysical' way), and computer files stored locally, not depending on any network or service.

Entities with a secondary mode of existence are those that will cease to be when a third party stops doing something. This is crucial, because any 'property' right granted in them, in its negative dimension, meaning a right to be left in peace with one's objects, would mean not only obligation of *non facere* towards others, but also a positive obligation to keep doing something towards the responsible party. This is a complete *novum* for private law.

Starting with those existing 'by action': files stored in a cloud will 'disappear' when the provider stops the service; virtual items within online virtual worlds will cease to be when the service is turned off; but also dematerialized money or shares in companies could 'disappear' when the electronic system sustaining them is shut down⁵⁸. This is also the case with bitcoin and other crypto-currencies sustained by block-chain networks, although the lack of a central provider makes a significant difference. I analyze the details of these differences in the next section.

An important observation is the fact that also rights, ranging from claims, through shares in companies, to other documentary intangibles (e.g. bills of lading) exist in a secondary mode, as long as the legal system sustaining them exists. Also 'information', understood as knowledge (and not facts) exists in a secondary manner.

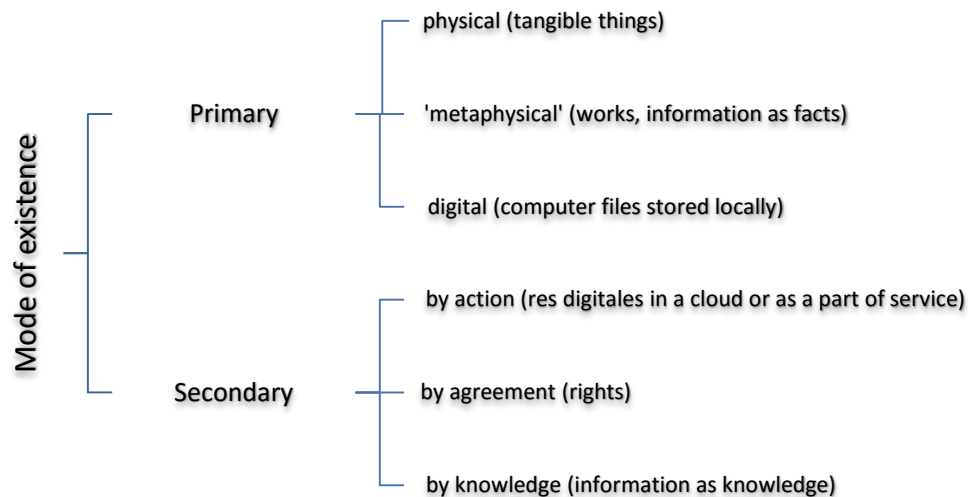


Figure 13. The division of objects due to their mode of existence

⁵⁸ The files or entries in databases might still 'exist', but if the service is inoperable, their 'owners' could no longer access them. That is the essence of the 'secondary mode of existence'.

Finally, a very important distinction must be made between ‘objects as such’ and their carriers. As noted above, numerous *res incorporales* must be incorporated in a medium (this necessity is sometimes technical, a literary work must be contained in a medium for an agent to interact with it; and sometimes legal, a share in company or a bill of lading must be incorporated in something because the law stipulates so).

The key observation is that *res incorporales* can often be incorporated into either a tangible, or a digital medium. A book, a database, a right might be either in paper or in a digital form. Similarly, the same type of a file (digital carrier) might incorporate different types of objects ‘as such’. To give an example, a pdf might contain a copyrighted work, but might just as well contain a list of personal data, or a database. What matters is that a carrier is never the same object as an object incorporated in it.

This leads to the last general observation: some *res digitales* will resemble choses in possession in the sense that they perform their functions due to their ‘intrinsic’ features, the way they are coded as a part of a larger service. One can use the virtual car in *Second Life* in a way that it is designed. That makes them different from *res digitales* resembling tangible carriers, documentary intangibles, like dematerialized money, bills of lading or company shares, which perform their functions not due to their intrinsic features, but the social function of objects they incorporate.

A more detailed picture

The categorization presented above is a general one, but for the legal system to operate properly, a more detailed categorization is necessary (again, due to different particular problems emerging in ‘property’ in different types of objects). Just as the law does not stop at defining ‘things’ as tangible objects, but further categorizes them into movables/immovables, divisible and indivisible, consumable and non-consumable, separately regulates fruits, accessories, necessary parts etc., the new categorization of new types of should take into account the legally relevant characteristics of these types.

Below I signal several distinctions, especially when *res digitales* existing in a secondary mode are concerned. The list is, however, not exhaustive and most probably will become more complex when further, specific research is conducted.

Firstly, entities existing by action (a service being provided) can be divided into those having public guarantee of existence (dematerialized money, bills of lading, shares in companies), whose existence does not depend on a business decision of a private party, but public law obliging particular entities to sustain them; a private mode of existence (virtual items, bitcoin, files in the cloud).

Secondly, within the entities in the last category, a distinction must be drawn between entities performing an in-service function (e.g. virtual property, in-app purchases) and those performing an out-of-service function (bitcoin, domain names, files in the cloud). Additionally, files in the cloud dwell in a category of non-essentiality (meaning they do not necessarily need to exist there and this mode to exist as such – they could just as well stay in the primary mode on a local drive), and essentiality, where bitcoin and domain names fall.

All this is graphically represented in the figure below:

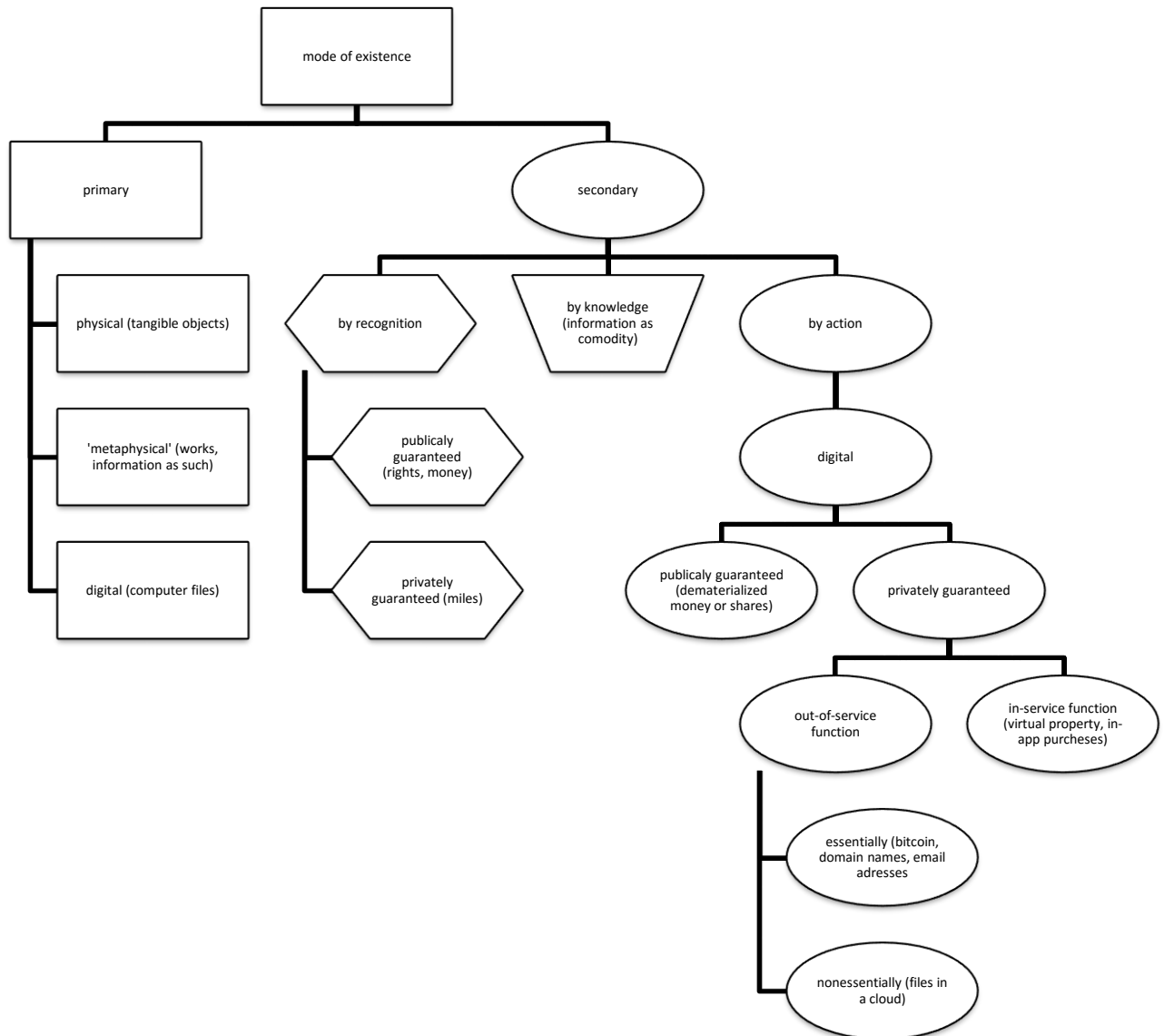


Figure 14. Proposed categorization of private law objects, according to their mode of existence

The added value of this approach to categorization is that it is free of a ‘residual category’, where ‘everything else’ would fall. On the contrary, it can be further expended, in order to stress the important differences between different types of objects. It might seem complex at the first sight, but I believe this is a problem of presentation technics rather than merits.

This is not a dogmatic proposition. On the contrary, it is supposed to be changing together with further research on specific types of objects of private law relations. However, its insights and vocabulary might inform the application of the toolkit, hence its presentation together with the methodological part. Additionally, I believe that the core contributions – distinction between material, digital and immaterial objects, as well as the primary and the secondary mode of existence, should be given serious consideration.

Conclusions

The structure of the reality assumed by private law does not mirror actual reality. The variety of objects that legal subjects currently control and trade, as well as the modes in which they do so, is much richer and more complex than law can give an account of through its current conceptual framework. In this article I have explained why this is the case, why this is problematic, and how to amend this undesirable state.

The proposed method consists of three steps: clearing up the terminology; analyzing the mode of existence of any types of objects (what can be done with and to them, and so what a potential property right in them might look like); and the analysis of the conditions of enforcement of such a potential right (aiming to inform and correct the substantive law considerations). The results of such an analysis are supposed to inform the normative considerations with descriptive and ‘potential’ insights (if one was to grant ‘property’ on something, what would that actually mean?) and enable the creation of new concepts useful and operable for law.

The initial application of this method led me to three insights on the doctrinal level: the need to distinguish between *res digitales* and *res incorporales*; the importance of the distinction between an object as such and its carrier; and the necessity to differentiate between objects with primary mode of existence (which exist ‘by themselves’) and secondary mode of existence (requiring a third party’s action to be sustained, e.g. files in the cloud, virtual items, digital currencies etc.). The last observation is crucial for any property considerations, since it would undermine the basic presupposition that the negative aspect of a property right is limited to *non facere*, what again challenges the assumptions about remedies, adjudication and enforcement.

Both the method and the recategorization of objects need to be tested and possibly amended and refined. This, however, can only be done ‘in action’, by applying the method to different types of objects of private law relations, scholarly debate and discussion. But the exercise of internalization of the new types of objects into law’s conceptual framework will need to be performed anyway. For that, lawyers need to re-learn how to create concepts, not only use them. We need to act like the Romans did.

Clearly, this is an enormous task, which cannot be handled by one person. It will take a significant amount of work, time and energy. However, Rome wasn’t built in one day either.

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